

## Seasonal Growth and Nutritive Quality Distribution for 7 Warm Season Perennial Grasses in the Texas Rolling Red Plains

Robert Ziehr, Rudy Esquivel, Ken Spaeth, George Peacock, Arnold Norman and Joel Douglas

Contact and Presenter: Joel Douglas, USDA-NRCS Central National Technology Support Center, Fort Worth, TX; [joel.douglas@ftw.usda.gov](mailto:joel.douglas@ftw.usda.gov)

Robert Ziehr, USDA-NRCS, Temple, TX

Rudy Esquivel, USDA-NRCS, Knox City, TX

Ken Spaeth, USDA-NRCS, Central National Technology Support Center, Fort Worth, TX

George Peacock, USDA-NRCS, Central National Technology Support Center, Fort Worth, TX

Arnold Norman, USDA-NRCS, Central National Technology Support Center, Fort Worth, TX

Nutritive quality of different grasses is important to livestock producers when making management decisions as when to utilize the grass to meet nutritional needs of grazing animals. Understanding growth and nutritive quality of warm season grasses is needed in the Texas Rolling Red Plains to assist livestock producers with forage management options. Our study objective is to compare the seasonal growth and nutritive distribution of six native warm season perennial grasses and an introduction to determine when to harvest or graze them to meet nutritional requirements for different beef classes. Replicated plots of 'Alamo' switchgrass (*Panicum virgatum* L.), 'San Marcos' eastern gamagrass [*Tripsacum dactyloides* (L.) L.], 'Earl' big bluestem (*Andropogon gerardii* Vitman), 'Lometa' Indiangrass [*Sorghastrum nutans* (L.) Nash], 'Selection 75' kleingrass (*Panicum coloratum* L.), 'Haskell' sideoats grama [*Bouteloua curtipendula* (Michx.) Torr.] and an upland switchgrass ecotype was established at the USDA-NRCS James E. "Bud" Smith Plant Materials Center near Knox City, Texas in May 2006. Grass plots were divided into eight quadrants and a monthly clipping date (April to November) was assigned to each quadrant. Nitrogen fertilizer was applied to grass plots at rates of 0 and 67 kg ha<sup>-1</sup>. Samples were collected every 30 days and analyzed for percent *in vitro* dry matter digestibility (IVDMD) and crude protein (CP) in 2007. *In vitro* dry matter digestibility and CP values declined monthly and with grass maturity. There were significant differences in grasses for IVDMD in all months except August and September (P<0.05). *In vitro* dry matter digestibility declined after June for all grasses except 'Earl' big bluestem, which maintained the highest IVDMD through July (60%). There were significant differences in CP for grasses in all months (P<0.05). 'San Marcos' eastern gamagrass and 'Selection 75' kleingrass produced a high CP in April (18 and 19%) and maintained ≥10% CP through September. Nitrogen fertilization did not significantly increase IVDMD and CP. Preliminary

data suggests these warm season grasses vary in nutritive quality by month and maturity and can provide the nutritive requirements of developing heifers, lactating cows and dry cows in the Texas Rolling Red Plains.